Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
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Amendment of Parts 2 and 25 of the Commission's Rules to Facilitate the Use of Earth Stations in Motion Communicating with Geostationary Orbit Space Stations in Frequency Bands Allocated to the Fixed Satellite Service	)	IB Docket No. 17-95

COMMENTS OF INMARSAT INC.

Inmarsat submits these Comments in support of the Federal Communications Commission's ("FCC's" or "Commission's") initiative, in the above referenced Notice of Proposed Rulemaking ("NPRM"), to facilitate operation of Earth stations in Motion ("ESIMs") with Fixed-Satellite Service ("FSS") geostationary-orbit ("GSO") satellites in the conventional Ka-band.[1] The Commission correctly observes that the interference environment for ESIMs in the conventional Ka-band is the same as for other earth stations operating in the frequency band on a primary basis today.[2] Therefore, allowing operation of ESIMs as an application of the FSS with primary status in the conventional Ka-band will reduce burdens on ESIM operators without corresponding harm. As discussed below, Inmarsat agrees that many of the proposed rule clarifications, revisions, and streamlining efforts will provide greater regulatory certainty and promote investment. Toward this end, Inmarsat requests that the Commission, as part of this

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1 *Amendment of Parts 2 and 25 of the Commission's Rules to Facilitate the Use of Earth Stations in Motion Communicating with Geostationary Orbit Space Stations in Frequency Bands Allocated to the Fixed Satellite Service*, 32 FCC Rcd 4239 (2017) ("NPRM")

2 NPRM, at para. 53.

proceeding, eliminate regulatory barriers for U.S.-licensed Earth Stations Aboard Aircraft ("ESAA") operating in foreign territory.

Inmarsat is the leader in global mobile satellite communications, operating a global system of 13 satellites and associated ground infrastructure that offers a wide range of communications solutions to customers on land, in the air, and at sea in L-band, S-band and Ka-band spectrum. Inmarsat's Global Xpress broadband satellite service uses the Ka-band to deliver data to the most remote and inaccessible locations of the world, and along many long-haul aviation and maritime routes that otherwise lack high-speed connectivity. Inmarsat's global system allows customers across the aviation, maritime, enterprise and government sectors to have reliable and assured access to high-throughput communications including voice, mobile broadband, safety-of-life, and emergency communications applications. Inmarsat's Global Xpress satellites operate in the 17.7-20.2 GHz and 27.5-30.0 GHz bands and have been delivering seamless, high-speed broadband connectivity across the globe since December 2015.

I. INMARSAT SUPPORTS THE NPRM'S PROPOSALS TO SIMPLIFY PART 25 FOR ESIM OPERATION

Inmarsat generally supports the NPRM's proposed amendments, new definitions, and streamlining "that will allow for greater clarity regarding the operation of [ESIMs] with GSO FSS space stations."[3] Below, Inmarsat highlights its support for the Commission's proposals.

Overview of Earth Station Licensing Rules. Inmarsat agrees with the Commission's proposal to allow ESIM applicants to use either of the two alternatives for licensing currently available for fixed earth stations, which will provide necessary flexibility.[4]

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3 *Id.*, at para. 8.

4 *Id.*, at para. 21.

Antenna Pointing Accuracy Requirement. Inmarsat agrees with the Commission's proposal to eliminate the antenna pointing accuracy requirement because the revised definition of theta for the off-axis angle "obviates the need" for it.[5] This will provide ESIM operators increased flexibility to meet the off-axis e.i.r.p. density levels for different operational scenarios.

Off-Axis E.I.R.P. Density Limits. Inmarsat supports the NPRM's proposal to cross-reference the off-axis e.i.r.p. density limits in Section 25.218 in the relevant ESIM rule section, merge the current off-axis EIRP levels in Section 25.138 to Section 25.218, and to extend the ESIM rules to cover Ka-band ESIMs.[6] These revisions will reduce duplication by consolidating similar rules under one rule section.

Data Logging Requirement. Inmarsat welcomes the FCC's request for comments on "whether the logging requirement is still necessary" and submits that it is unnecessary and should be eliminated.[7] The Commission acknowledges that it has never requested this data from an ESIM operator, and Inmarsat confirms it has never received such a request. Thus, while benefits are absent, the burden on operators is large. In addition to logging the requisite data, which includes earth station location, transmit frequency, and target satellite, operators need to maintain the data for at least one year and make the data available to various entities, upon request, within 24 hours. To enable compliance, operators must maintain a complex and costly system, with no apparent benefits. Eliminating the data logging requirement will reduce regulatory burdens without any consequential harm.

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5 *Id.*, at para. 22.

6 *Id.*, at paras. 23-24.

7 *Id.*, at para. 30.

Contention Protocols, Point of Contact in the United States, Remote Monitoring and Control Requirement, Self-Monitoring Requirement, Cessation of Uplink Transmissions Upon Loss of Downlink Signal, and ESIM Installation Requirement for Radiation Hazard Mitigation. Inmarsat also supports the Commission's various proposals regarding contention protocols, a point of contact in the United States, remote monitoring and control, ESIM terminals self-monitoring and cessation of uplink transmissions upon loss of downlink signal, and ESIM installation requirements for radiation hazard mitigation.[8] These rule revisions will promote uniformity and efficiency.

II. INNMARSAT RECOMMENDS A CERTIFICATION—INSTEAD OF A DEMONSTRATION—FOR THE PROPOSED SHUTDOWN AND MONITORING REQUIREMENTS

Shutdown Requirements. Inmarsat supports the Commission's proposed shutdown and monitoring requirements,[9] but it disagrees that ESIM applicants should have to "demonstrate how that requirement will be met."[10] Such a demonstration at the application phase that would produce the necessary "detailed showings" is impractical.[11] Rather than a burdensome demonstration, Inmarsat submits that applicants should be able to certify compliance in their applications, just like the requirements of current Rule 25.227.[12]

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8 *Id.*, at paras. 28-29, 31-34.

9 *See* Proposed Rule 25.228(b) and (c).

10 NPRM, at para. 25.

11 *Id.*, at para. 62.

12 47 C.F.R. §25.227

III. INMARSAT SUPPORTS OPERATION OF ESIMs IN THE CONVENTIONAL Ka-BAND, INCLUDING 29.25-29.3 GHz

Inmarsat supports proposed changes to the U.S. Table of Allocations to allow the operation of ESIMs as an application of the FSS with primary status in the conventional Ka-band.[13] Specifically, Inmarsat agrees with the Commission's proposed modification to non-federal government footnote NG55 to add the conventional Ka-band frequency ranges and adoption of international footnote 5.527A that addresses ESIM operations in portions of these bands.[14] The resulting changes, which would afford ESIMs blanket licensing, are not problematic. Since the turn of the century,[15] the Commission has "blanket license[d] ubiquitously-deployed fixed earth stations in the conventional Ka-band under section 25.138."[16] Inmarsat agrees with the agency that the interference risk for ESIMs would be no different than currently-operating earth stations in the conventional Ka-band.[17]

Accordingly, Iridium's concerns with ESIM operations in the 29.25-29.3 GHz band are unfounded.[18] As the Commission recognizes, currently-authorized blanket-licensed fixed earth stations in this band have been able to coordinate successfully with the limited number of Iridium feeder links operating in the United States.[19] Typically, GSO FSS coordination with NGSO MSS feeder links results in an exclusion area around the NGSO MSS feeder link location of varying sizes based on polarization, earth station power levels, and other technical parameters.

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13 *See id.*, para. 53.

14 See id., para 53.

15 *See Redesignation of the 17.7-19.7 GHz Frequency Band*, 15 FCC Rcd 13430 (2000).

16 NPRM, para. 53. n.54.

17 *Id.* para 53.

18 *See id.*, para. 54.

19 *See id.*, para. 53. n.56.

ESIM operations will be consistent with those of fixed earth stations, and the potential for interference to NGSO MSS feeder links will be controlled by the same coordination conditions as those for fixed earth stations. ESIM terminals can detect their specific location, allowing them to operate consistent with coordinated parameters, including avoiding agreed-upon exclusion zones around Iridium feeder links.

Moreover, the adoption of the proposed rules will not diminish opportunities to introduce additional services in these bands on a shared basis.[20] Providing regulatory certainty to ESIM operations in the conventional Ka-band serves the public interest. ESIM operations do not increase the potential for interference with other services vis-à-vis fixed earth stations, and therefore the overall interference environment would not change significantly. In addition, ESIM operations will have no discernable impact on adjacent frequency bands, including the new Upper Microwave Flexible Use Service ("UMFUS").[21]

IV. THE COMMISSION SHOULD FURTHER REVISE OR CLARIFY THE NPRM'S PROPOSALS REGARDING VEHICLE-SPECIFIC REQUIREMENTS

Inmarsat generally supports the Commission's effort to revise and reorganize the vehicle-specific rules in Part 25. For instance, Inmarsat agrees with the FCC's proposal to maintain and update the language of the rule regarding Earth Stations on Vessel ("ESV") hub earth stations per Proposed Rule 25.228(e)(1).[22] That said, Inmarsat offers other specific revisions the Commission should explore.

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20 *Id.*, at para. 55.

21 *Id.*, at para. 55.

22 *Id.*, at para. 38.

First, the Commission should not require U.S.-licensed ESAA to comply with FCC rules while operating in a foreign territory. Operators already must obtain permission from a foreign country before providing commercial ESAA service in that country's airspace. Requiring ESAA onboard U.S. aircraft to comply with rules of both the Commission and a foreign regulator where the aircraft is located will limit service – and put that aircraft at a competitive disadvantage -- compared to the service provided to non-U.S. aircraft in the same airspace. Furthermore, the weight of the underlying rationale for the FCC requiring ESAA terminals on U.S. aircraft to operate under its rules—avoiding interference to other U.S.-licensed services—greatly diminishes in foreign airspace.

By extension, the Commission should clarify that ESIM applications do not need to seek a waiver of the U.S. table of frequency allocations set forth in Section 2.106 of the FCC's rules *provided* the U.S.-licensed ESAA and ESV terminals operate consistent with the applicable National Table of Allocations and regulations, and are permitted by the relevant administration within the countries where these operations occur. This clarification would further the Commission's recognition in the 2012 *ESAA Order* that "ESAA terminals on U.S.-registered aircraft may operate over international waters . . . and in foreign countries and therefore may need" to operate in frequency bands allocated on a primary basis for other services in the United States.[23] This requested clarification also would be consistent with the Commission's practice of not requiring waivers for U.S. licensed satellites using spectrum outside the United States that is consistent with the ITU allocation for the region of service.[24] Permitting such non-U.S.

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[23] *Earth Stations Aboard Aircraft*, Notice of Proposed Rulemaking and Report and Order, 27 FCC Rcd 16510, para. 18 (2012) ("ESAA Order").

[24] *See* Application for Authority to Launch and Operate Intelsat 36 at 68.5º E.L., SAT-LOA-20151231-00089 (granted June 9, 2016) ("Intelsat 36 will use the 12200-12500 MHz band to provide FSS in Region 1 and use the 17800-18100 MHz band as an FSS feeder link to the

operations without requiring a waiver of the domestic table of frequency allocations serves the public interest by promoting administrative efficiency and enabling U.S.-registered aircraft and ships to have access to the same services offered to non-U.S. registered aircraft and ships in other parts of the world.

V. CONCLUSION

Inmarsat appreciates the opportunity to submit comments in this proceeding and applauds the Commission for its work promoting rules and policies that support ESIM operations with GSO FSS systems in the conventional Ka-band. Inmarsat urges the Commission to move through the rulemaking process expeditiously and looks forward to working with the agency in future.

Respectfully submitted,

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Broadcasting-Satellite Service ("BSS") in Region 1. In the U.S. Table of Frequency Allocations, 47 C.F.R. § 2.106, these bands are allocated for BSS and Fixed Services, respectively. Because Intelsat 36 will not provide service to the U.S. in these bands, Intelsat is not requesting a waiver of Section 2.106. If Intelsat seeks to serve the U.S. in the future using these bands, Intelsat will request the appropriate waivers.")